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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,547	07/30/2003	Patrick A. C. Gane	239126US0CONT	6504
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER CORDRAY, DENNIS R	
			ART UNIT 1731	PAPER NUMBER
DATE MAILED: 01/10/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,547

Applicant(s)

GANE ET AL.

Examiner

Dennis Cordray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 14 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-30, 32-37, 43, 46-51 and 53 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 31, 38-42, 44, 45 and 52 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/3/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The terminal disclaimer filed on 9/29/2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 6,666,953 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Objections

2. Claim 10 is objected to because of the following informalities: The word "of" in the last line should be changed to "or". Appropriate correction is required.

Examiner's Suggestions

3. It is suggested for clarity that the word "presents" in the second line of Claims 6 and 7 be changed to "has."

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 9, 11, 14-15, 22, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 1 recites the limitation "said component (1)" in an line 1 of the same claim. There is insufficient antecedent basis for this limitation in the claim.
- Claim 9 recites a process for treating pigments in aqueous suspension and also recites a limitation "wherein paper filled or coated with said suspension, at a constant area and thickness, weighs less than paper treated with said suspension but without said combination." It is unclear how the latter statement, which appears to relate to an intended use for a product of the process, limits the process.
- Claim 11 recites in stage b) "Treatment with gaseous CO₂, whether this treatment be an integral part of stage a), be carried out in parallel with stage a), or..." The distinction between "an integral part of" and "carried out in parallel with" is not clear. Both phrases seem to encompass the simultaneous treatment with providers of H₃O⁺ ions and gaseous CO₂. The simultaneous treatment with providers of H₃O⁺ ions and gaseous CO₂ will be assumed for the purposes of this examination.
- Claims 14 and 15 recite "the ratio (volume of suspension:volume of gaseous CO₂). It is unclear what is meant by the volume of gaseous CO₂. Is it a volume of gas remaining dissolved in the suspension at the end of treatment? Is it the total volume of gas used over the treatment period of up to 10 hours? Is it measured at standard temperature and pressure (STP) conditions? The claims will not be further examined as the Examiner cannot make a reasonable interpretation of the claim.

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- Claim 22 recites the limitation "pigment" in Claim 21. There is insufficient antecedent basis for this limitation in the claim.
- Claim 28 recites the limitation " at constant surface area" in Claim 26, which depends from Claim 1. Claim 1 recites "at a constant area and thickness." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 8-11, 13, 17, 19, 21-29, 33, 43, 46 and 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Plumstead (2178606).

Plumstead discloses a process for treating sludge left over from treating dolomite to produce a filler or pigment for the manufacture of paper (p 1, col 1, lines 1-16). The sludge contains calcium carbonate and magnesium carbonate from the natural source of dolomite (p 1, col 1, lines 30-45). The process includes steps of bubbling CO₂ through an aqueous suspension of the sludge and adding an acid such as sulfuric or sulfurous acid (p 1, col 2, lines 44-55 and p 2, col 1, lines 1-2). The steps may be performed in any order (p 2, col 1, lines 58-60). The CO₂ can be from pure sources, from waste sources, or be generated from the addition of the acid (p 1, col 2, lines 48-

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55 and p 2, col 1, line 1). The treatment can be performed prior to or with addition of a paper stock (p 1, col 2, lines 20-32; p 2, col 1, lines 44-48). A base can be added to raise pH if the sludge is acidic (p 2, col 2, lines 3-6). The product can be used in papermaking process by combining it with wood pulps (p 2, col 2, lines 55-58). A paper is produced using the product (p 4, col 1, lines 71-74). Since the product of Plumstead is similar, if not identical, to the claimed composition (carbonate from natural source, H_3O^+ ion provider, CO_2 , and reaction products thereof), the pH of the suspension would inherently fall within the claimed range and a paper treated with the product would inherently have the claimed weight properties.

6. Claims 1-3, 5-6, 8-13, 16-17, 19-25 and 28-29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shibuzaki et al (4244933).

Shibuzaki et al discloses a process for precipitating calcium carbonate particles by treating an aqueous suspension or calcium hydroxide with CO_2 in the presence of phosphoric acid (col 2, lines 32-52). The process involves a first step of partially converting the calcium hydroxide to calcium carbonate using CO_2 in the presence of phosphoric acid. In a second step, the product of the first step is again treated with CO_2 in the presence of phosphoric acid to produce more carbonate. In a third step, the product of the second step is again treated with CO_2 in the presence of phosphoric acid to produce even more carbonate (cols 5 and 6). Additional phosphoric acid can be added in the second step (col 6, lines 33-41). The products of the first, second and third

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steps thus contain calcium carbonate, phosphoric acid and CO₂ as well as reaction products thereof, making a similar, if not identical composition as that of the instant invention. Since no chemical difference was indicated in the instant specification, there is no disclosed difference between using natural and synthetic calcium carbonate as far as the effects on the paper treated therewith. Shibuzaki et al recite examples of fillers made that have particle sizes from 1-2 μm and surface areas from 10-17 m^2/gm , which values lie within the claimed values (col 16, Table 11-1). Temperatures used were between 30 and 60 °C (cols 9-10, Examples 1-3). Shibuzaki et al discloses a paper coated with the pigment composition (col 13, Reference Example 1). Since the composition is similar to that of the instant invention, the pH of the suspension would inherently be within the claimed range and the paper treated with the composition would inherently have the claimed weight properties.

7. Claims 20, 30, 32-36, 47, 49-51 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plumstead or Shibuzaki et al in view of Brown (5676746).

Plumstead and Shizubaki et al do not disclose the use of a dispersing agent. Plumstead and Shizubaki et al also do not disclose that the pigment or filler can be added to the thin stock or the thick stock or that paper can be made using synthetic fibers. Plumstead and Shizubaki et al further do not disclose that paper made using the pigment or filler can be used for printing.

Brown discloses a filler or coating for paper comprising a slurry of calcium carbonate particles, either from natural or synthetic sources (col 7, lines 2-5, 13-19. A

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dispersant is added (col 10, lines 57-60). The material is used as a filler or as a coating for paper (col 14, lines 21-32). The treated paper has increased bulk and enhanced printing properties (Abstract). Brown discloses that it is known to use dolomite, calcium carbonate, kaolin, talc and titanium oxide as fillers and pigments in papermaking (col 1, lines 11-15). Brown further discloses that

The instant disclosure teaches that a specialist in the field would know that papers can be made using wood fibers (such as resinous or deciduous wood) or synthetic fibers (non-wood), fillers and water. The instant disclosure also teaches that the process includes a diluting a thick stock to make a thin stock. The stock containing filler is drained on a wire and the medium that is drained off contains a portion of the filler and is called a white liquor. The instant disclosure teaches that a formed sheet is coated and that some loss of coating color and coated paper occurs, the lost paper being recycled as a mass filler (pp 1-2).

The art of Plumstead, Shizubaki et al, Brown and the instant invention are analogous in that they pertain to filled and/or coated paper. It would have been obvious to one skilled in the art at the time of the invention to use a dispersant in the aqueous suspensions of Plumstead or Shizubaki et al in view of Brown to provide for even distribution of the filler or coating on the paper. It would also have been obvious to use either wood fibers or synthetic fibers to make paper as functional equivalents. It would have been obvious to add the pigment or filler to a thin or thick stock as a standard process for manufacturing paper. It would have been obvious to use the coated and

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filled paper with enhanced printing properties for printing using conventional digital printing machines.

8. Claims 18 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plumstead or Shibuzaki et al in view of Straunch et al (4767464).

Plumstead and Shizubaki et al do not disclose that the natural carbonate sources include marble, calcite or chalk.

Straunch et al discloses sources of natural calcium carbonate fillers including chalk and marble (col 7, lines 3-36).

The art of Plumstead, Shizubaki et al, Straunch et al and the instant invention are analogous in that they pertain to filled and/or coated paper. It would have been obvious to one skilled in the art at the time of the invention to obtain calcium carbonate from chalk or marble for the filler of Plumstead or Shizubaki et al in view of Straunch as functionally equivalent and readily available sources.

Allowable Subject Matter

9. Claims 4, 7, 31, 38-42, 44-45 and 52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4 and 38: The previous art that comprises acid and CO₂ treatment of carbonates discloses only small quantities of acid in the process, (i.e.- less than 5 percent of the amount of calcium hydroxide, which would amount to less than 5 percent

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of the amount of calcium carbonate). The use of larger relative amounts of acid is not anticipated or suggested by prior art.

Claims 7 and 39-41: The calcium carbonate particles made by the nearest previous art have a much lower surface area than the preferred range indicated in the instant claims, thus do not anticipate or make obvious particles of higher surface area.

Claims 42 and 44-45: The very specific conditions used to prepare the fillers of the instant invention are neither disclosed or made obvious by the processes of the nearest prior art.

Claims 31 and 52: While there is a large body of prior art dealing with calcium carbonate fillers and a large body of art dealing with recycling white liquor and broke, the filler compositions are added to the new stock and not the recycle streams. The recycle streams contain fillers lost during the draining and forming process but new filler compositions are not added to these streams prior to their combination with the new stock. Thus the prior art does not suggest adding new filler compositions to the recycle streams alone.

Response to Arguments

10. Applicant's arguments with respect to claims 1-60 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

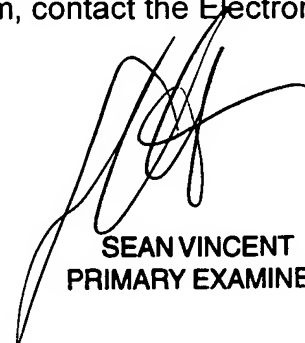
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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